NPort 5000AI-M12 Series Quick Installation Guide

Version 4.1, December 2024

Technical Support Contact Information
www.moxa.com/support

P/N: 1802051503014

Overview

NPort 5000AI-M12 device servers make serial devices instantly network-ready. They comply with EN 50155/EN 50121-4, making them suitable for rolling stock and wayside applications that are usually subject to high levels of vibration. Use Moxa's NPort 5000AI-M12 device servers to give your PC software direct access to serial devices from anywhere on a network.

Package Checklist

Before installing an NPort 5000AI-M12 Series device server, verify that the package contains the following items:

- 1 NPort 5000AI-M12 series device server
- Quick installation guide (printed)
- Warranty Card

NOTE Notify your sales representative if any of the above items are missing or damaged.

Optional Accessories

- DK-TN-5308: DIN-rail kit

Hardware Introduction

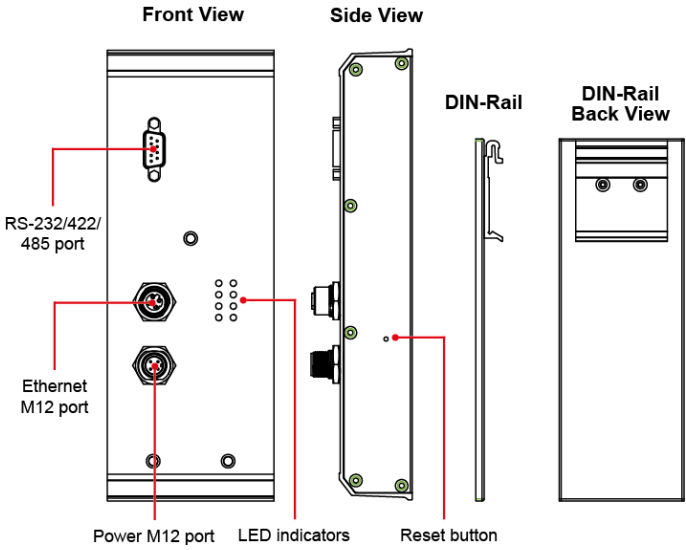
The NPort 5150AI-M12 series has a 3-in-1 (RS-232/422/485) DB9 serial port for serial data communication, the NPort 5250AI-M12 series has two 3-in-1 (RS-232/422/485) DB9 serial ports for serial data communication, and the NPort 5450AI-M12 has four 3-in-1 (RS-232/422/485) DB9 serial ports for serial data communication.

NOTE
1. Equipment is intended for installation in Restricted Access Area.
2. The equipment is intended to be supplied by a UL/IEC certified power source with ES1 output rated 12 to 48 VDC, minimum 440 mA. A minimum ambient temperature of 55°C or 75°C (55°C for standard non-T models; 75°C for wide-temp T models.)

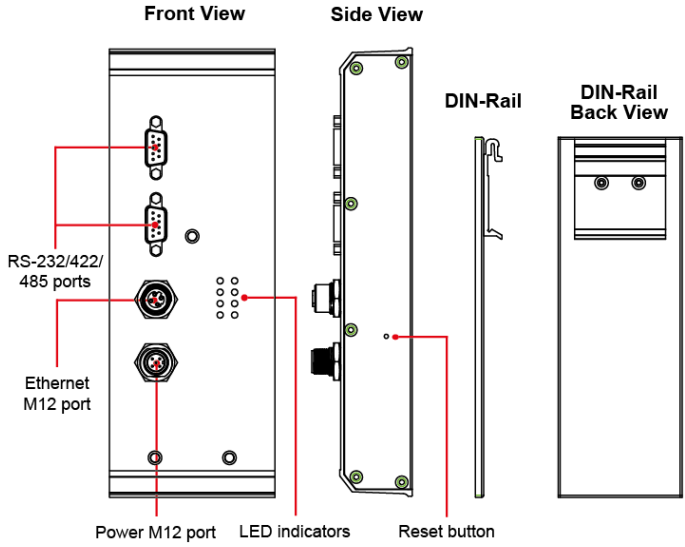
CAUTION

Risk of Explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

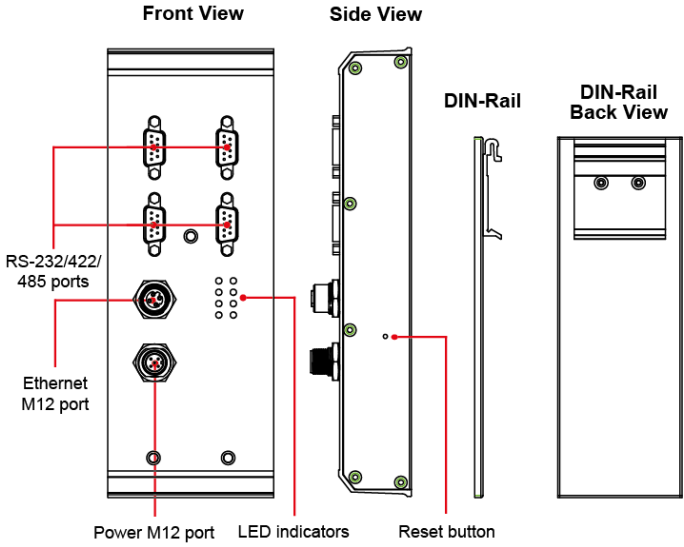
NPort 5150AI-M12 Appearance



NPort 5250AI-M12 Appearance



NPort 5450AI-M12 Appearance



The Reset to Default Button—*Press the reset button to default button for five seconds continuously to load the factory default settings.* Use a pointed object, such as a straightened paper clip or toothpick, to press the reset button to default button. This will cause the Ready LED to blink on and off. Once the Ready LED stops blinking (after about five seconds), the device loads the factory default settings. You can release the reset button to the default button.

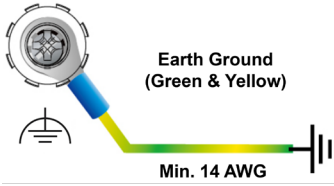
NPort 5000AI-M12 LED Indicators (front panel)

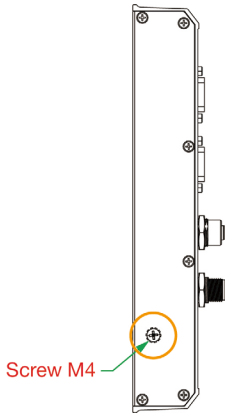
Name	Color	Function
PWR	green	Power is being supplied to the power input.
Ready	red	Steady on: Power is on, and NPort is booting up.
		Blinking: Shows an IP conflict, or the DHCP/BOOTP server did not respond properly.
	green	Steady on: Power is on, and NPort is functioning normally.
		Blinking: The NPort has been located by NPort Administrator's Location function.
	off	Power is off, or a power error condition exists.
10M, 100M	orange	10 Mbps Ethernet connection.
	green	100 Mbps Ethernet connection.
	off	Ethernet cable is disconnected.
P1, P2, P3, P4	orange	Serial port is receiving data.
	green	Serial port is transmitting data.
	off	No data is being transmitted or received through the serial port.

Hardware Installation

This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel. Use the green-and-yellow cable type minimum with American Wire Gauge (AWG) 14 (2.5 mm^2) for grounding.

The ground screw's location is as the figure shown on the right illustration:





Panel / Wall Mounting

Mounting the NPort 5000AI-M12 on the wall requires three screws. Please use the three screws provided in the product package.

STEP 1: Use the device to mark the positions of the three screw holes on the wall, as shown in the mounting dimensions diagram.

STEP 2: Use one screw to go through the top-middle screw hole on the device server and screw it into the wall.

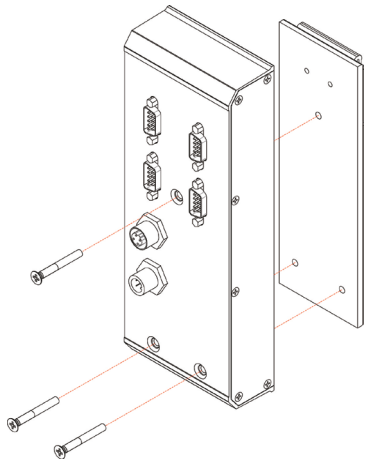
STEP 3: Screw in the remaining two screws through the bottom-left and bottom-right holes on the device server to the wall.

NOTE Please use the screws (M3 x 40 mm) included.

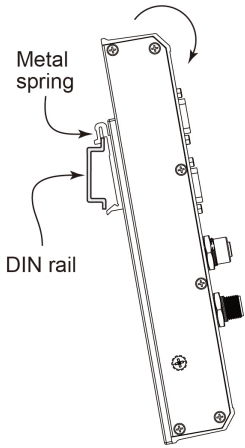
DIN-rail Mounting (optional)

You may use the optional DIN-rail mounting kit (DK-TN-5308; must be purchased separately) to mount the NPort 5000AI-M12 on a 35 mm DIN rail.

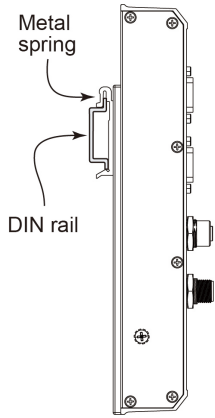
STEP 1:
Fix the DIN-rail attachment plate onto the rear panel of the device server as the figure shown on the right.



STEP 2:
Position the NPort 5000AI-M12 on the DIN rail and tilt it to hook the clamps over the top edge of the rail.



STEP 3:
Swing the device server down onto the DIN rail until both clamps securely latch on.



NOTE Please use the screws of M3 x 40 mm, 3 screws.

Software Installation Information

For the NPort's configuration, the default IP address of the NPort is LAN: Static IP = 192.168.127.254; netmask = 255.255.255.0

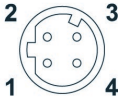
You may log in with the password **moxa** to change any settings to meet your network topology (e.g., IP address) or serial device (e.g., serial parameters). If you would like to apply the Real COM mode to your application, you will need to install the NPort's driver on your desktop. You may also refer to Moxa's support website https://www.moxa.com/support for the user's manual, driver, SNMP MIB, and NPort Search Utility.

NOTE For the NPort with DB Male serial ports, you may refer to the DB9 Male Ports pin assignment section to loop back pin 2 and pin 3 for the RS-232 interface.

Pin Assignments and Cable Wiring

Ethernet M12 D-coded 4-pin female connector:

PIN	TX
1	TD+
2	RD+
3	TD–
4	RD–

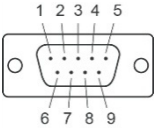


Housing: shield

Power M12 5-pin male connector:

PIN	Description
1	Input V+
2	Not assigned
3	Input V-
4	Not assigned
5	Functional ground

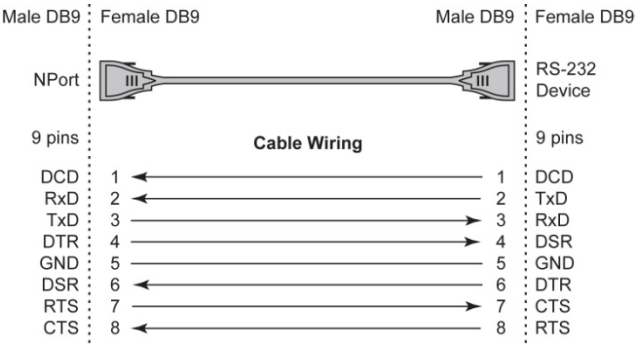
RS-232/422/485 (Male DB9) Pinouts



PIN	RS-232	RS-422/ RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–
9	–	–	–

Four cables are available as optional accessories that can connect the NPort 5000AI-M12 series to RS-232 serial devices. The pin assignments for both connector types are shown below.

Female DB9 to Male DB9



Specifications

Physical Characteristics	
Housing	Metal, IP40 protection
Dimensions	80 x 216.6 x 52.9 mm (3.15 x 8.53 x 2.08 in)
Environmental Limits	
Operating Temperature	• Standard Models: -25 to 55°C (-13 to 131°F) • Wide Temperature Models: -40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	5 to 95% (non-condensing)
Conformal Coating	
PCB conformal coating for –CT models	
Power Input (Need to modularize)	
Input Voltage	12 to 48 VDC
Input Current	440 mA (maximum) @ 12 VDC
Connector	M12 A-coded 5-pin male connector
Power Line Protection	Compliant with EN 50155 on 24/48 VDC
Regulatory Approvals (Please always refer to Moxa's product website for the latest information)	
EMC	EN 55032/35
Safety	UL 62368-1
Rail Traffic	EN 50121-4, EN 50155
Shock	EN 50155, IEC 60068-2-27
Vibration	EN 50155, IEC 60068-2-6
Reliability	
Alert Tools	Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger	Built-in WDT (watchdog timer)
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty
For railway rolling stock applications, the device must use a power supply that is compliant with the EN 50155 standard and provides galvanic isolation.	